

# SBORNÍK NÁRODNÍHO MUZEA V PRAZE

ACTA MUSEI NATIONALIS PRAGAE

XLII B (1986), No. 1—2

REDAKTOR: JIŘÍ ČEJKA

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## SLAVONIC BURIAL-GROUND IN LITOMĚŘICE PLEŠIVECKÁ STREET

In 1979 the archaeological department of the Regional Museum in Teplice with the District Museum in Litoměřice carried out an emergency excavation of Slavonic burial-ground on the north-western edge of city area in Litoměřice along Plešivecká Street. Acquired archeological material was after special elaborating passed on to the District Museum in Litoměřice where it is deposited with inventory numbers 506—556. Skeleton remains from this excavation are deposited in the anthropological department of the National Museum in Prague with inventory numbers 9230—9255.

This work starts with the archaeological part, then the demographical and metric-morphological analysis of skeletons follows, and the third part deals with the condition of health of the investigated population.

### ARCHAEOLOGY — F. GABRIEL

#### THE FIND SITUATION

The excavation started on a site near Plešivecká Street opposite the house Nr. 1498. The area was disturbed by digging to lay the water main for a new housing estate and by lowering the ground about 0,5 m. The ditch disrupted the simple stratigraphy of three strata. The profile under the roadway of Plešivecká Street consisted of black soil, hard and crumbling when dry (Stratum 3). This stratum goes southward, where it is overlain by Stratum 1 formed of gray soil. On its base an

increasing amount of fragments of marly limestone was found, which also appeared in Stratum 2. This is the rock base whose disintegrated surface is formed by Stratum 2.

Burial pits were hollowed into Stratum 1 or went through it into Stratum 2. In Stratum 3 was one burial pit which could not be uncovered for technical reasons.

The extent of the investigated area was delimited in the north by Plešivecká Street, in the east by the plot of house Nr. 1598. Negative results of a probe in the immediate surroundings of the graves in the west and south and the absence of finds in the foundation excavations of the new housing estate define the south and west order of the area used for burials (Fig. 4).

Numerical description of the graves is given in Table 1. The following aspects were studied:

1. Number of the grave.
2. Maximum depth of the burial pit in metres.
3. Hollowing of the burial pit into Stratum 1 [1], 2 [2].
4. Ground plan of the burial pit: rectangular or oval [1], rectangular with narrowing around the knees of the skeleton [2], extension of the burial pit to one side in the upper part [3], not found out [4].
5. Arrangement of burial: stones put round mostly irregularly [1], stones put round and remains of covering of the skeleton by a wooden board [2], stones around and remnants of the wooden cover and the stone [3], not found [4], without arrangement [0].
6. Position of the skeleton:
  - on the back, hands along the body, legs stretched out [1];
  - on the back, hands along the body, knees bent less than 45 degrees [2];
  - on the back, one hand under the pelvis, the other in the pelvis, knees bent [angle over 45 degrees], knees propped against the wall of the burial pit [3];
  - on the back, one hand along the body, the other in the pelvis, legs stretched [4];
  - on the back, one hand along the body, the other under the pelvis, legs stretched [5];
  - on the back, one hand in the pelvis, the other under the pelvis, legs stretched [6];
  - due to disturbance of the grave the body position cannot be determined [7].
7. Sex of the skeleton according to anthropological determination by H. Hanáková: woman [1], man [2], child [3], not determined [4].
8. In the grave were grave goods: yes, further see Table 2 [1], no [0].
9. The number of the grave which disturbs the investigated grave, otherwise [0].
10. Number of the figure.

**Table 1**

1	2	3	4	5	6	7	8	9	10
1	0,60	2	1	1	1	2	0	0	1:1
2/A	0,82	2	1	1	2	3	0	0	1:2
2/B	0,55	1	4	4	7	3	0	2/A	1:2
2/C	0,50	1	4	4	7	3	0	0	1:2
2/D	1,02	2	1	0	5	2	1	0	1:3
2/E	1,28	2	1	0	6	2	0	0	1:4
3/A	0,30	1	4	4	7	3	0	3/B	—
3/B	0,98	2	1	1	7	2	0	0	1:5
4/A	0,95	2	4	1	7	1	1	0	—
4/B	0,50	1	4	4	7	3	1	0	—
5	0,95	2	4	4	7	3	0	0	1:6
6	0,45	1	4	4	7	3	0	0	1:7

Table 2 (continued)

7	1,07	2	1	3	1	1	0	0	1:8
8/A	0,25	1	4	4	1	3	0	0	1:9
8/B	0,21	1	4	4	1	3	0	0	1:10
8/C	0,59	2	2	0	3	1	1	0	1:11
9	0,78	2	1	0	5	1	1	0	1:12
10	0,89	2	4	4	7	4	0	0	2:1
11	0,53	2	1	0	1	1	1	0	2:2
12	0,57	2	1	2	1	2	0	0	2:3
13	0,72	2	1	0	1	1	1	0	2:4
14	0,66	2	1	0	6	1	1	0	2:5
15	0,53	2	1	0	1	3	1	0	2:6
16	0,66	2	1	0	1	2	0	0	2:7
17	0,70	2	3	1	1	3	1	0	2:8
18	1,00	2	1	0	4	1	1	0	2:9

Equipment with grave goods is presented in Table 2.

This table contains the data:

1. Number of the grave.
2. Degree of the cover of the find complex, covered find {1}, broken find {0}.
3. Vessel: yes {1}, no {0}.
4. Knife: yes {1}, no {0}.
5. Temple-ring (so called „Schläfenring“): yes (number of pieces), no {0}.
6. Egg shells: yes {1}, no {0}.
7. Ring: yes {1}, no {0}.
8. Coin as a pendant: yes {1}, no {0}.
9. Coin as a obolus of the corpse: yes (the time of mint), no {0}.

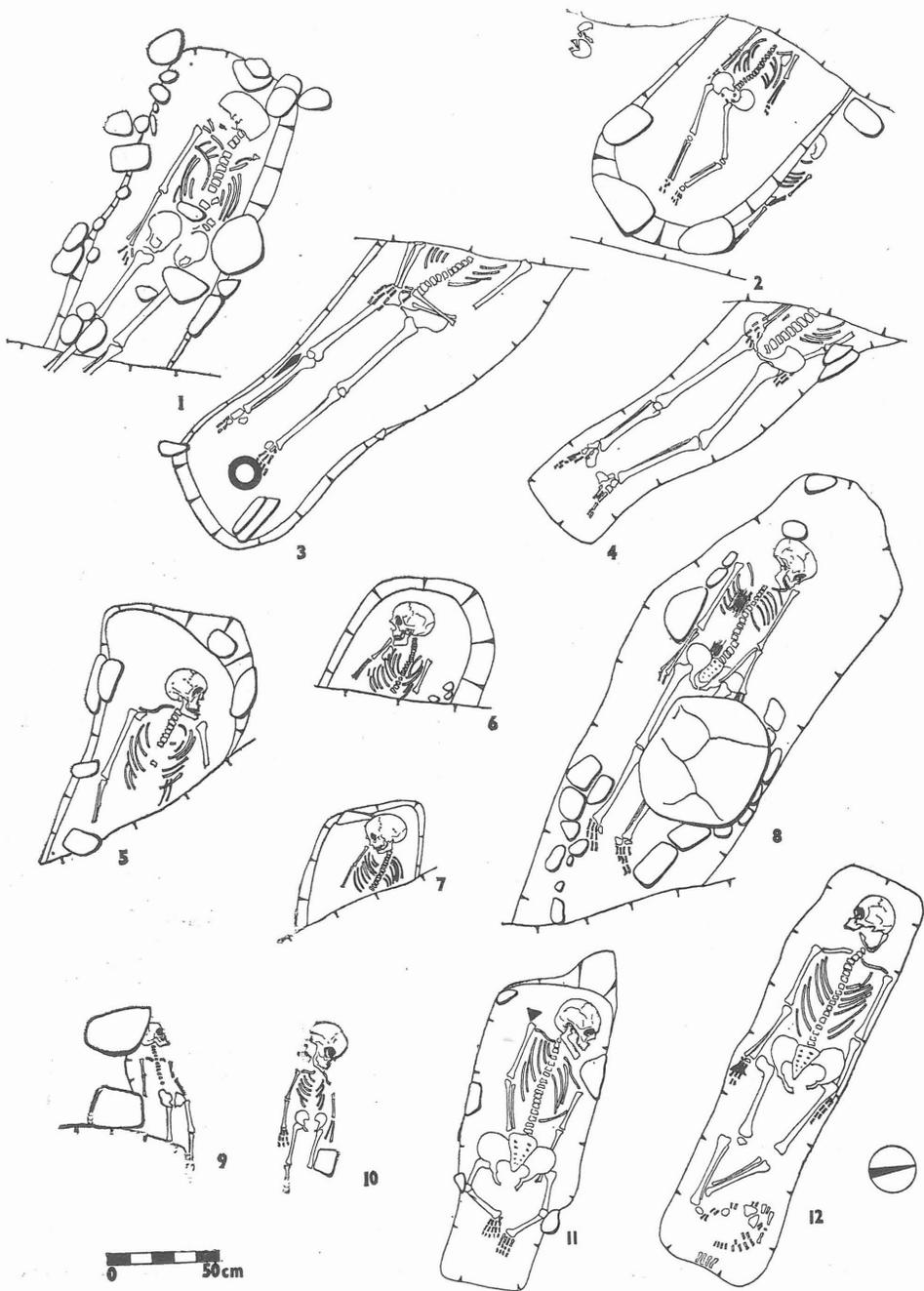
A greater number of bones, at least from five persons (see anthropological analysis), was obtained in the excavation of Grave 2/A — 2/E. Temple-rings found there cannot be unambiguously linked with any of the bodeis. But with the regard of their being in the same place, they are considered to be the equipment of the grave designated as Grave 2 in Table 2.

Table 2

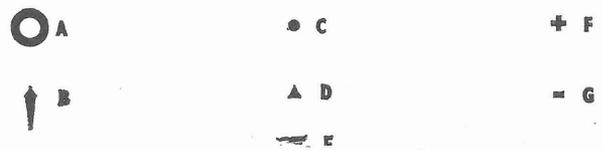
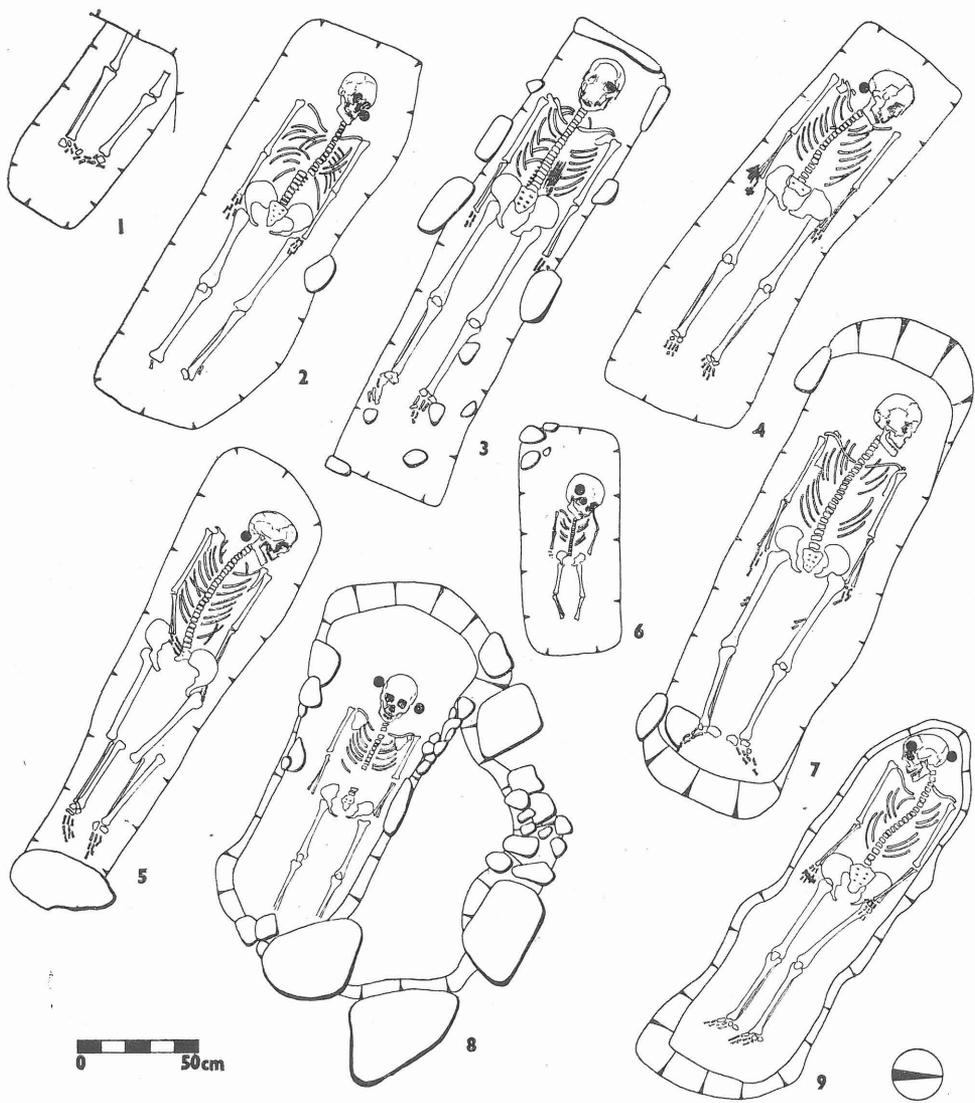
1	2	3	4	5	6	7	8	9
2/D	0	1	1	0	0	0	0	0
2	0	0	0	6	0	0	0	0
4/A	0	0	0	1	0	0	0	0
4/B	0	0	1	0	0	0	0	0
8/C	1	0	0	0	0	0	1	0
9	1	0	0	0	0	0	0	1092—1100
1	2	3	4	5	6	7	8	9
11	1	0	0	1	0	0	0	0
13	1	0	0	2	1	0	0	1092—1100
14	1	0	0	1	0	0	0	0
15	1	0	0	1	0	0	0	0
17	1	0	0	10	0	0	0	0
18	1	0	0	18	0	1	0	0

From the gifts are in Table 3 described greater detail the temple-rings. This table contains the following data:

1. Number of the grave.
2. Inventory number of the District Museum (Okresní vlastivědné muzeum) in Lito-měřice.



**Fig. 1**  
 1 — Grave 1; 2 — Grave 2A, B, C; 3 — Grave 2D; 4 — Grave 2E; 5 — Grave 3B; 6 — Grave 5; 7 — Grave 6; 8 — Grave 7; 9 — Grave 8A; 10 — Grave 8B; 11 — Grave 8C; 12 — Grave 9. Grave goods Table 2.



**Fig. II**  
 1 — Grave 10; 2 — Grave 11; 3 — Grave 12; 4 — Grave 13; 5 — Grave 14; 6 — Grave 15;  
 7 — Grave 16; 8 — Grave 17; 9 — Grave 18. Grave goods: A — vessel, B — knife, C —  
 temple-ring, D — coin, E — remains of a wooden board, F — egg shells, G — ring.

3. Thickness of wire in millimetres.
4. Diameter of temple-ring in millimetres given as an arithmetic mean of its maximum and minimum size.
5. Material — bronze (1), silver (2), bronze plated with silver (3); no chemical analysis was made).
6. Type of shape of temple-ring: temple-ring with one S (1), temple-ring with an extended S (2), temple-ring with bilateral S (3).

**Table 3**

1	2	3	4	5	6
2	506	1,80	16,2	1	1
2	507	1,80	17,3	1	1
2	508	1,80	16,4	1	1
2	509	1,80	17,1	1	1
2	510	1,90	17,1	1	1
2	511	1,80	16,8	1	1
4/A	514	1,90	14,1	1	1
11	518	3,85	23,8	1	1
13	519	3,90	29,3	3	3
13	520	3,80	28,2	3	1
14	522	3,50	29,1	3	1
15	523	1,10	10,7	2	1
17	524	2,00	20,2	1	1
17	525	2,05	20,5	1	1
17	526	1,50	17,3	1	1
17	527	1,60	17,9	1	1
17	528	1,60	17,7	1	1
17	529	2,10	19,0	1	1
17	530	1,60	17,8	1	1
17	531	2,20	16,3	1	1
17	532	2,00	21,0	1	1
17	533	2,00	20,7	1	1
18	534	1,45	10,0	2	1
18	535	1,50	10,8	2	1
18	536	2,10	14,2	1	1
18	537	1,65	12,8	1	1
18	538	2,20	13,4	1	2
18	539	1,80	12,2	1	1
18	540	1,70	13,3	1	1
18	541	1,85	13,2	1	1
18	542	1,85	13,7	1	1
18	543	1,75	13,8	1	1
18	544	1,80	13,7	1	1
18	545	1,85	13,7	1	1
18	546	1,90	14,5	?	1
18	547	1,85	12,9	1	1
18	548	1,90	13,0	1	1
18	549	1,85	13,1	1	1

### ANALYSIS OF THE SOURCES

The value of the evidence of the 26 graves from the burial-ground in Litoměřice — Plešivecká Street is influenced by two negative facts. The investigated graves are only one part of a larger burial-ground. It is evidenced partly by the find of a skeleton under the roadway of

Plešivecká Street, which was not uncovered, and partly by older finds deposited in the District Museum in Litoměřice and localized to Plešivecká Street (ZÁPOTOCKÝ 1965). The advantage of the investigated part of the burial-ground is that it is its edge.

The second negative fact is the disturbance of 50 % of the graves. Besides the disturbing of two graves (2/B, 3/A) by younger graves (2/A, 3/B), Graves 4/A, 4/B were disturbed by amateur excavations and 9 graves (1, 2/A, 2/D, 2/E, 3/B, 5, 6, 7, 10) were more or less destroyed by mechanical excavator. Besides this we must also count with the fact that several complete graves were destroyed excavations in the surroundings of Grave 2 and 3. The anthropological analysis counts at least with 5 persons in the set of bones collected near Graves 2/A—2/E.

### DATING OF THE BURIAL SITE

Basic dating aid are the grave goods. On their basis graves with equipment in Litoměřice — Plešivecká Street can be divided into three groups. The first consists of graves with a knife or a knife a vessel, the second comprises graves with temple — rings and the third graves with coins.

The oldest graves according to Z. KRUMPHANZLOVÁ's dating belong to the first group, that is 2/D and 4/B. They both were equipped with a knife (Fig. 3:1, 2), the goods in 2/D included also a vessel (Fig. 3:1), which however cannot be excluded even in the case of grave 4/B, destroyed just in the spot which is used for the placing of a vessel. Z. KRUMPHANZLOVÁ (1974) connects the knives in the graves with the 9th—10th centuries. The same holds for vessels whose common occurrence ends in the second third of the 10th century (KRUMPHANZLOVÁ 1974). M. ZÁPOTOCKÝ came to the same conclusion (1965). Nor is the vessel itself in any clash with this dating. Its rim belongs to type VI of M. ZÁPOTOCKÝ, dated as the 9th—10th centuries, therefore in the same way as the equipment. If we accept the extreme limit, then Graves 2/D and 4/B were equipped sometimes in the second third of the 10th century. Grave 2/E without any grave goods also belongs to this group. It is earlier than burial 2/D, as follows from the stratigraphy. But the length of time between them cannot be determined.

The second group, characterized by temple-rings, is represented by 8 graves. The beginning of the occurrence of temple-rings in Bohemia is not quite clear. R. TUREK (1946), who found their occurrence already before the end of the 8th century, dates back to oldest period. Their occurrence ends in the 12th century, though they survive till the 13th century. They are common in the 10th—12 th centuries (KRUMPHANZLOVÁ 1974). A more exact dating of the graves is questionable, as many authors pointed out (ZÁPOTOCKÝ 1965, SMETÁNKA 1973, KRUMPHANZLOVÁ 1974). Partly it must be counted with certain survival of smaller temple-rings in the younger periods whether it was due to some slowing down of the development or longer use of older jewels, partly it is necessary to differentiate temple-rings in children' graves, which have, mostly about the 12th century, a smaller size than it was then fashion-

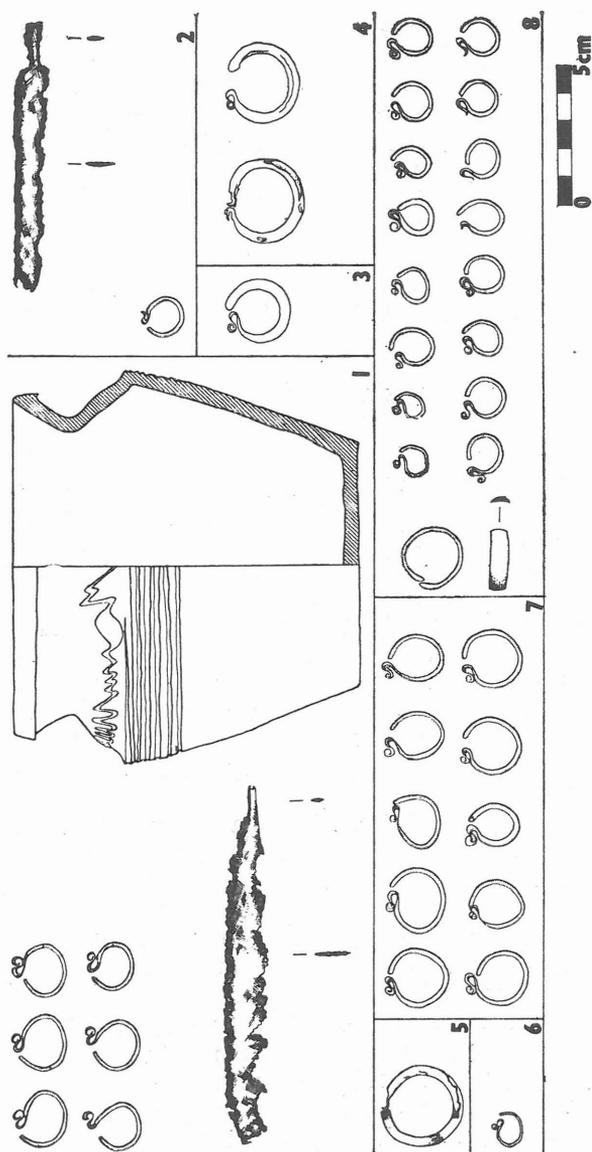
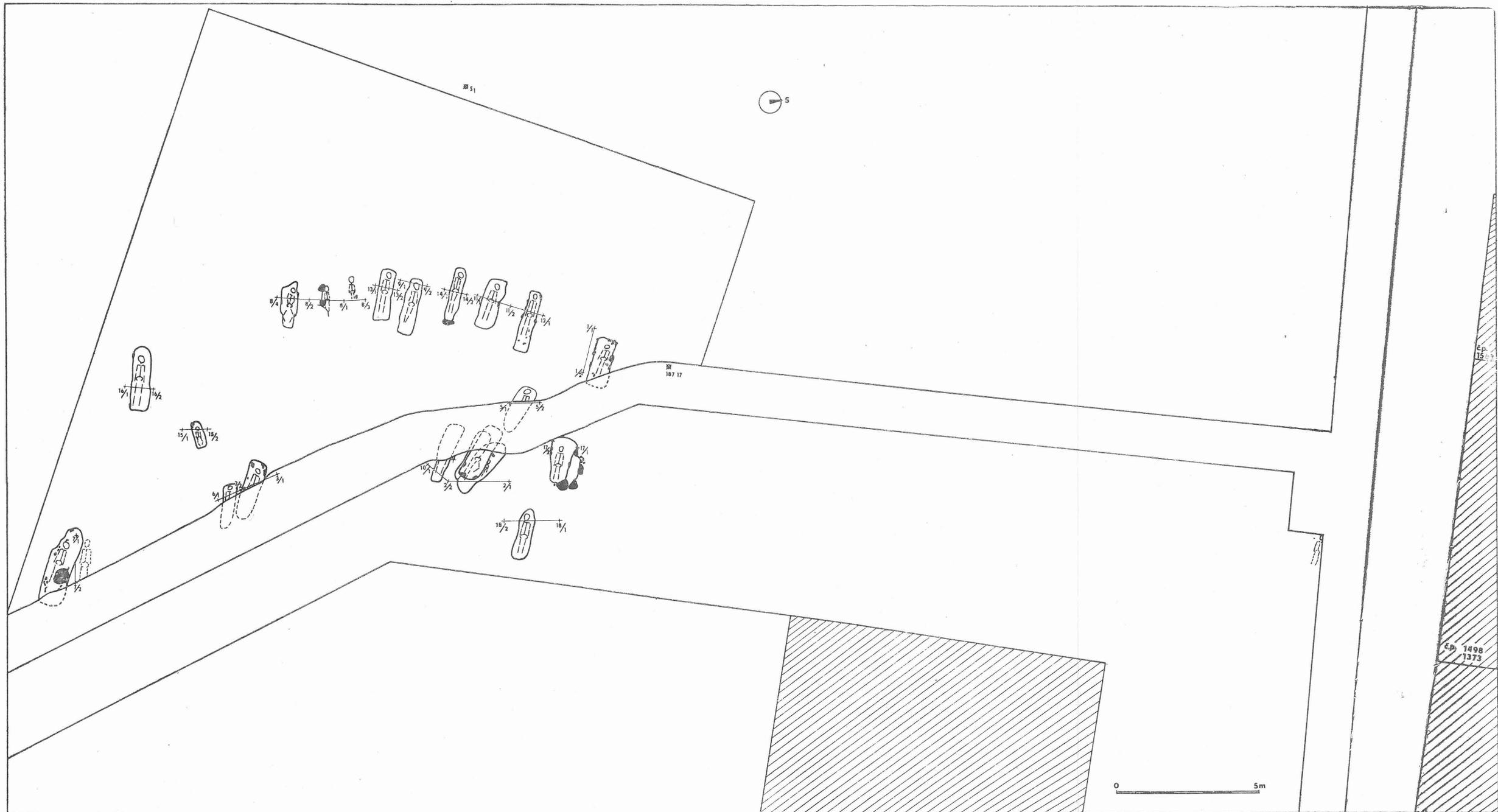


Fig. III  
 Grave goods: 1 — Grave 2, 2D; 2 — Grave 4A, 4B; 3 — Grave 11; 4 — Grave 13; 5 —  
 Grave 14; 6 — Grave 15; 7 — Grave 17; 8 — Grave 18.

able (NECHVÁTAL, RADOMĚŘSKÝ, 1964). The difference is also showed by the material used (KRUMPHANZLOVÁ 1974).

According to the criterions of M. ZÁPOTOCKÝ the oldest graves on the burial-ground in Pleštivecká Street equipped with temple-rings of the 12,2—14,5 mm diameter were placed in the ground before 1000. This group includes Graves 4/A and 18 (Fig. 3:2,8). The former is a child



**Fig. IV**  
 The general situation on the burial-ground in Litoměřice — Plešivecká Street.

grave (8 years) equipped with only one temple-ring. The woman in Grave 18 had two silver and 14 bronze temple-rings from which one had a wide hammered out undecorated loop (the so called Nitra type) which is dated in Bohemia by Z. KRUMPHANZLOVÁ (1974) to the beginning of the 11th century at the most. The other jewel found on the hand of the skeleton, an undecorated strip ring (Fig. 3:8), does not contradict this dating; it kept appearing as a jewel among Slavs in Bohemia in the whole 11th century (KRUMPHANZLOVÁ 1974).

Other graves with larger temple-rings (2, 11, 17) with the diameter of 16,2—23,8 mm (Fig. 3:1, 3, 7) date back, according to M. ZÁPOTOCKÝ (1965), to the first half of the 11th century. The dating of the silver temple-ring from Grave 15 with diameter 10,7 mm (Fig. 3:6) is controversial. Likewise it is with the silver-plated temple-ring with the diameter 29,1 mm from Grave 14 (Fig. 3:5). The gradual increase in diameters holds for silver-plated temple-rings too, then the temple-ring from Grave 14 would also belong to the second half of the 11th century because the silver-plated temple-rings found in Grave 13 dated by a coin of Břetislav II. (1092—1100) had the diameter of 29,3—28,2 mm. The bilateral S on one of the temple-ring (diameter 29,3) is also in the agreement with this dating. The occurrence of this S on temple-rings with larger diameters is found by Z. KRUMPHANZLOVÁ (1974) after the middle of the 11th century. With this case we come to the third group of graves with equipment.

During the excavation three graves equipped with a coin<sup>1)</sup> were found. Like Grave 13, also Grave 9 was equipped with a coin of Břetislav II. In both cases it was an obolus held in the hand of the deceased as it was described by P. RADOMĚRSKÝ (1955). The interpretation of the coin (from Grave 8/C), the coin of Bořivoj II minted in 1100—1107 and again 1109—1110, is on a different level. Although the coin belongs to those which P. RADOMĚRSKÝ (1955) regards as coins from the period of the oboli, this find must be evaluated in the same way as the discovery of the jewel. It ensues both from the location of the coin in the grave and from the fact that the denarius was perforated in two places to serve as a pendant. The placing of the corpse was thus possible not earlier than in 1100 but with the regard to the interpretation of the discovery it should be counted with a rather longer interval. There is no evidence for the determination of the time between the mint and the placing in the grave.

The other graves are without any grave goods. Their dating, of course only relative, can be based on the fact that the burials were placed according to a certain principle. Z. KRUMPHANZLOVÁ finds burial sites of late period fort in the axis from the east to the west and from the south to the north. The investigated burial-site shows two kinds of burials. On the eastern side are graves in groups or separate graves with no perceptible order; the area on the western edge is defined by a row of graves leading from the north to the south (Fig. 4). When we use the graves dated by grave goods, we find that the oldest graves are in the eastern part of the investigated burial-ground, while the younger ones are in the western area. The direction of burials in a row was, however,

from the north to the south. The oldest grave in the row with grave goods contains only one bronze temple-ring with the largest diameter in the whole set. The last interment on the southern side took place some time after 1100.

If we sum up the facts about dating of the investigated part of the burial-ground, we can say that it was used from the 10th century at the latest. Its aceramic phase ends some time in the 12th century.

M. ZÁPOTOCKÝ dates the burial equipment from older finds in an identical way (1965). However, the exact location of these finds in Plešivecká Street is not given. As the dating of both sets is identical we believe that the finds come one burial-ground of a larger size.

### CHARACTER OF THE BURIAL-GROUND

Most corpses were placed on their backs, with hands along their body, legs stretched in graves with stones around or without them, sometimes covered with a wooden board. The exceptions are three graves (2/A, 7, 8/C). Grave 7 is exceptional because it is covered with a big stone, and the grave is the edge of the burial-ground (Fig. 4). Similar finds are interpreted by Z. KRUMPHANZLOVÁ (1961) as a certain evidence of the belief in vampyres. In this connection it is interesting to say that the skull from this grave, according to anthropological analysis, has mongoloid features. So it is obvious that the buried woman was already during her life of different appearance than the other people around her.

The second anomaly in the burial rite is the placing of the corpse in a crouched position. In the case of Grave 2/A the crouching is not great and therefore it cannot be decided whether it was an intention or chance. But the crouching of the skeleton in Grave 8/C was intentional. It is proved by the shape of the burial pit, which narrows eastward, as well as by its length which could not be sufficient for stretched legs. The interpretation of this form of burial is not unambiguous. I. BORKOVSKÝ (1938) connects it with the superstition of the society or pagan magicians of that time. Z. KRUMPHANZLOVÁ is against connecting the crouched burials with animistic ideas (1961). Our case does not help to interpret this form of burial and so its explanation remains outside possibility.

The equipment of the graves is as usual. From 26 investigated graves 11 graves contained grave goods (42,31 %). The material from the collection is not included in this number. The character of the grave goods corresponds to the current burial of that particular period. There is even a decrease in goods in younger graves. The discovery of an egg shell in Grave 13 seems to be somewhat archaic. This grave also contained a coin minted in 1092—1100. According to the present opinions (BORKOVSKÝ, 1961; SMETÁNKA, HRDLIČKA, BLAJEROVÁ, 1973) the egg shells are remnants of the food for the deceased, while the coin was to serve for the buying of food (RADOMEŘSKÝ, 1955). In our case it is thus the problem of a double evidence of belief in posthumous life.

As it follows from the investigated situation, the uncovered part of the burial-ground in Plešivecká Street is one of the common rural burial-grounds.

## CONCLUSION

The problem of rural burial-grounds outside the settlement involves the question to which settlement the burial-ground belonged. The association of the burial-ground in Plešivecká Street with a particular settlement was discussed already by M. ZÁPOTOCKÝ (1965). He indicated the possibility of linking it with the now extinct village of Újezd. Its location is possible only on the basis of the name of an area situated about 1100 metres from the burial-ground and lying higher than the burial-ground. No archeological finds were made there, which could make the position and dating more accurate. So we have only a marginal remark in the foundation document of the Litoměřice Chapter, inscribed there some time in the 13th century.

All these data contradict the data on the relation of the settlement to the burial-ground, established by M. ZÁPOTOCKÝ (1965). Even when we disregard dating of the beginnings of the village of Újezd, about which we only know that it existed in the 13th century, there is another discrepancy between the distance, which should be at best 300—500 metres, and the location of the burial-ground, which should be, according to what we know, above the village. Because of an analogous discrepancy M. Zápotocký rejected the connection of the burial-ground in Plešivecká Street with the village of Pokratice.

When we use the data of M. ZÁPOTOCKÝ (1965), it is necessary to seek the settlement related to the uncovered burial-ground to the south and south-west from it, in the places where the ground is lower. Here in a strip 300—500 metres away from the burial-ground Lopata's brickkiln was situated, and there in 1877 three potsherds from the fort time were found (ZÁPOTOCKÝ, 1965). It is true that their dating to old-till middle- fort- period (ZÁPOTOCKÝ, 1965) does not agree with the period when our part of the burial-ground was used but there is the problem of evaluation of the three potsherds in relation to the settlement, and at the same time the beginning of burying on the whole burial-ground in Plešivecká Street. This interpretation is thus not unambiguous either but we cannot solve satisfactorily this problem with the existing knowledge of the Slavonic settlement in the present-day area of the land register of the town of Litoměřice.

## ANTHROPOLOGY — H. HANÁKOVÁ

### BASIC DETERMINATION OF THE INDIVIDUAL SKELETONS

Grave 1 — a man, 30—40 years, dolichomorph. Partly measurable skull and postcranial skeleton. The skull has a sloping forehead, excessively formed supraorbital ridges, slightly formed frontal tuberosities, the external occipital protuberance of the 4th grade. Male pelvis. Processus entepicondylicus on the left humerus. One tooth caries and four premortem tooth losses were found in the upper and lower jaws.

Grave 2a — a child, 6—7 years. Very well-preserved postcranial skeleton.

Grave 2b — a child, 6 months. Fragments of the skull. Metopic suture on the frontal bone.

Grave 2c — a child, 2—3 years. Fragments of the skull and partly measurable postcranial skeleton.

Grave 2d — a man, adult. Fragment of the right temporal bone and partly measurable postcranial skeleton. The greater sciatic notch and the subpubic angle on the pelvis are of the male shape. Lumbarization of the first thoracic vertebra. Condition after the compression fracture in the second lumbar vertebra. Deformed vertebral osteophytosis and degenerative arthritis of the intervertebral joints of the lumbar vertebrae. Degenerative arthritis of minute joints of both hands.

Grave 2e — a man, 18—20 years old. Partly measurable postcranial skeleton. Some epiphyses of long bones are not yet grown together. Collection near Grave 2 — Fragments of various bones of postcranial skeletons of at least two adult persons and at least three children aged 3—8; these fragments can belong to skeletons from Graves 2a — e. Besides, there are skull fragments of children aged 7—8 with green colouring of temporal bones; this skull could belong to the postcranial skeleton from Grave 2a but it cannot be established with certainty.

Grave 3a — a child, 2 years. Partly measurable skull and postcranial skeleton.

Grave 3b — a man, 50—60 years, leptodolichomorph. The skull is in a good state of preservation, the postcranial skeleton is partly measurable. The glabella and the supraorbital ridges are excessively formed, the forehead is slightly sloping and the frontal tuberosities are slightly formed. The external occipital protuberance is of the 3rd grade, the mastoid process is small. A single tooth caries and several premortem losses were found in both jaws. Spina bifida of the 6th cervical vertebra (C 6). Posttraumatic pseudoarthrosis of the 5th metatarsal bone on the left. Deformed vertebral osteophytosis and degenerative arthritis of intervertebral joints of the cervical vertebrae. Degenerative arthritis of both shoulder and elbow joints and the right radiocarpal joint.

Collection near Grave 3 — Fragments of the skull and the postcranial skeletons of two adult persons, probably a man and a woman, and a small child.

Grave 4 — a woman, adult. Partly measurable postcranial skeleton. Pelvic bones have wide open subpubic arch, wide greater sciatic notch and the preauricular sulcus on both sides. Clear postinflammatory changes on the middle ribs on the left.

Grave 4a — a child, 8 years. Partly measurable skull and upper half of the postcranial skeleton.

Collection near Grave 4 — Fragments of the upper jaw and fragments of the postcranial skeleton of a non-adult and an adult.

Grave 5 — a child, 5 years. Measurable skull and slightly disturbed upper half of the postcranial skeleton.

Grave 6 — a child, 3 years. Partly measurable skull and upper half of the postcranial skeleton.

Grave 7 — a woman, 20—30 years, mesocran. Partly measurable skull and postcranial skeleton. The skull has a slightly formed glabella and supraorbital ridges, the forehead is slightly sloping, the upper edge of the orbit is sharp, the external occipital protuberance is flat (1st grade), the mastoid process is small. A wide greater sciatic notch and preauricular sulcus. Supratrochlear foramen of both humeri.

Grave 8a — a child, 3 years. The skull is in fragment and the postcranial skeleton is partly measurable.

Grave 8b — a child, 2—3 years. Skull fragments and partly measurable postcranial skeleton.

Grave 8c — a woman ?, 30—40 years, leptodolichomorph. The skull is partly measurable and the postcranial skeleton is in fragments. Slightly formed glabella (2nd grade) and supraorbital ridges, slightly sloping forehead, marked frontal tuberosities, dull upper edge of the orbit and slight external occipital protuberance, (2nd grade). Five caries teeth and one premortem loss were found in the upper and lower jaws. The teeth are excessively worn. Pelvic bones have a rather wide greater sciatic notch and slightly formed preauricular sulcus on the both sides. Deformed vertebral osteophytosis of the thoracic vertebrae, degenerative arthritis of intervertebral joints and middle joints

of both hands (with ankylosis of the proximal and middle phalanges of the little finger on the left).

Grave 9 — a woman, 40—50 years, dolichomorph. Partly measurable skull and well-preserved postcranial skeleton. The glabella is medium-convexed (3rd grade), the frontal tuberosities are well marked, the upper edge of the orbit is sharp, the external occipital protuberance is intermediate (3rd grade). The wide greater sciatic notch, the wide subpubic arch and the preauricular sulcus on both pelvic bones are typical of a woman. In the preserved teeth not a single caries but 10 premortem losses were found. Deformed vertebral osteophytosis of the whole vertebral column. Degenerative arthritis of both elbow joints.

Grave 10 — an adult person of indeterminable sex. Partly measurable lower limbs.

Grave 11 — a woman, 30—40 years. Skull in fragments, postcranial skeleton partly measurable. The wide greater sciatic notch, the subpubic arch and moderately formed preauricular sulcus point out it is a woman. Several premortem losses were found in the jaws.

Grave 12 — a man, 50—60 years. The skull is in fragments, the bones of the postcranial skeleton are partly measurable. The glabella (of the 6th grade) and the supraorbital ridges are excessively formed, the upper edge of the orbit is dull the external occipital protuberance is slightly formed (2nd grade), the mastoid process is large. Most of teeth were lost while the man was alive and the remaining are much worn. The narrow greater sciatic notch and the subpubic angle are typical for a man. Partial sacralization of the 5th lumbar vertebra. Synostosis of the body and xiphoid process of the sternum. Deformed vertebral osteophytosis of the thoracic and lumbar vertebrae. Degenerative arthritis of all large joints of the upper and lower limbs and both acromioclavicular joints.

Grave 13 — a woman, 30—40 years, eurydolichomorph. The skull is partly measurable, the bones of the postcranial skeleton are nearly without deformations. The glabella (2nd grade) and supraorbital ridges are slightly formed, the forehead is moderately sloping and the upper edge of the orbit is sharp. The external occipital protuberance is slight (2nd grade). The teeth are moderately worn with only one caries and a single premortem loss. The pelvic bones have a wide open subpubic arch, a rather wide greater sciatic notch and bilaterally formed preauricular sulcus. Ponticulus atlantis posterior bilateralis. Bilateral spondylolysis of the 5th lumbar vertebra.

Grave 14 — a woman, 50—60 years, leptodolichomorph. Partly measurable skull and slightly deformed postcranial skeleton. Convexed forehead with marked frontal tuberosities, flat glabella (2nd grade) and supraorbital ridges, sharp upper edge of the orbit. The teeth of the upper and lower jaws are without a single caries, very much worn; there is only one premortem loss. The wide greater sciatic notch and widely open subpubic arch and slightly formed preauricular sulcus are typical of a woman. Os apicis. Bilateral cervical rib. Deformed vertebral osteophytosis of the lumbar vertebrae.

Grave 15 — a child, 6—9 months. Skull and postcranial skeleton in fragments.

Grave 16 — a man, 40—50 years, leptodolichomorph. On the skull can be observed sloping forehead, strongly convexed glabella (4th grade) and supraorbital ridges, dull upper edge of the orbit, large mastoid process, slight external occipital protuberance (1st grade). Close greater sciatic notch. The teeth are excessively worn, with several caries, premortem losses and cysts. Slightly formed mandibular torus. Deformed osteophytosis of the lumbar vertebrae.

Grave 17 — a child, 7—8 years. The skull and the bones of the postcranial skeleton are partly measurable.

Grave 18 — a woman, 20—30 years, leptodolichomorph. The skull is without deformation, the postcranial skeleton is partly measurable. The forehead is convexed with marked frontal tuberosities, the flat glabella (2nd grade) and the flat supraorbital ridges. The external occipital protuberance is flat (2nd grade), the mastoid process is small. Wide greater sciatic notch, wide open subpubic arch and bilaterally formed preauricular sulcus. The wear of the teeth is slight, the set of the teeth is without deformation. Spondylolysis of the 4th lumbar vertebra.

## DEMOGRAPHICAL ANALYSIS

Altogether 26 graves were uncovered during the emergency excavation in Litoměřice — Plešivecká Street and skeletal remains were found in 18 graves. Some graves (2 and 3) were in superposition, in another place three burials were found in one grave, but not in superposition (Grave 8). The total number of persons found in all graves inclusive of admixture was 36; from these 17 (47,2 %) non-adults and 19 (52,8 %) adults. From non-adults 12 (33,3 %) children were classed as infants I, and only 3 (8,3 %) children were classed as the infants II, and 2 (5,6 %) skeletons belonged to juvenile persons. From adults 6 (16,6 %) persons were determined as male and 9 (25,0 %) as female. The sex of 4 (11,1 %) adult skeletons could not be determined owing to the fragmentary condition of the material (Table 1). The division of adult men and women by decades is shown in Table 2. The women died in rather young age, the men in rather old age. Table 3 presents the division of skeletons of non-adults according to their age. Most of them are at the age 3 and 8 years. These basic demographical data have only informative significance. We are fully aware that this is only a sample of a certain population because only a small part of the whole burial-ground was uncovered.

## METRIC — MORPHOLOGICAL ANALYSIS

For the metric analysis we used commonly used absolute measurements and indices which are shown in Martin-Saller's textbook. We supplemented them by measurements of the flatness of the face — the height of the nasal root, subspinal and simotic heights measured after Alekseev and Debec, and Škerlje's frontomandibular index. Capacity of the skull was calculated after Welcker I, men's height was investigated after Breitingner, the female stature after Bach.

Three male and seven female skulls were measurable. The male skulls are mostly very long, narrow and medium high, the breadth of the face is narrow, the height of the face is intermediate and upper face of one skull is low and of the second is intermediately high. The female skulls are mostly very long and narrow, the skull is high to medium high. The faces of the women are very wide to medium wide. The skull indices found in men are hyperdolichocranic to dolichocranic, in women they are hyperdolichocranic to mesocranic. Further, male and female skulls are orthocranic, acrocranic and eurymetopic. The faces are hyperlepto- to leptoprosopic, mesene to leptene. The orbits are mesoconch, the nose is chamaerrhine. The alveolar index is on average mesognathic and the frontomandibular index is mesomandibular in both sexes. Both men and women are mostly tall.

As to morphology, we studied features of the skull and pelvis which are important for sex dimorphism: the slope of the forehead, the shape of the glabella and the supraorbital ridges, the thickness of the upper orbital edge, the shape of the external occipital protuberance, the size of the mastoid process and the marginal tubercle. On the pelvis it is the shape of the greater sciatic notch and the subpubic arch and the pre-

sence or lack of the preauricular sulcus. The anatomic varieties registered in the investigated material included one case of slightly formed torus mandibularis in Skull 16, torus palatinus in Skull 8c and the formation of two wormian bones in the lambdoid suture in Skull 14.

For typological analysis were available 3 male and 6 female skulls. All male skulls were dolichomorphous and in two skulls even the faces could be defined as leptomorphous. The typological analysis of the female skulls was not so unambiguous, leptodolichomorphous types apparently predominate, eurydolichomorphous and eurymesomorphous types occurred once. The investigated series of the skulls appears to be homogenous. The male and the female skulls have in the vertical norm elongated ovoid shape, the face is mostly oblong, in three cases conspicuous maxillar prognathia was found. The female skull from Grave 7 with a wide face with protruding facial bones is unique in this small series on account of its mongoloid features. In comparison with a nearby locality Bilina, dated nearly into the same period (between the end of the 10th century and the first half of the 13th century), we can say that the partly investigated burial-ground in Litoměřice is markedly different in typology; the skulls from Bilina are by far less markedly hyperdolichocranic than in the Litoměřice series. But as in our case it is only a part of the burial-ground, we cannot make any far-reaching conclusions from this comparison. So far we can only say that both populations were probably slightly different from each other.

### CONCLUSION

During an emergency excavation in Litoměřice — Plešivecká Street only 18 graves dating to early 12th century were uncovered. The total number of buried persons was 36, from this 19 were adults and 17 non-adults. From adults 6 were men, 9 women and the sex of 4 skeletons cannot be determined because of the fragmentary condition of the remains. Most male and female skulls are clearly dolichomorphous.

**Table 2 — Distribution of the skeletons of adults according to decades**

	Adultus		Maturus		Total
	20—30	30—40	40—50	50—60	
Men	—	1 = 9,1 %	1 = 9,1 %	2 = 18,2 %	4 = 36,4 %
Women	2 = 18,2 %	3 = 27,3 %	1 = 9,1 %	1 = 9,1 %	7 = 63,6 %
Total	2 = 18,2 %	4 = 36,4 %	2 = 18,2 %	3 = 27,3 %	11 = 100,0 %

**Table 1 — Distribution of the skeletal material in Litoměřice — Plešivecká Street**

	Infans I	Infans II	Juvenis	Adultus		Maturus		Adult	Total
				20—30	30—40	40—50	50—60		
Men	—	—	1=2,8 %	—	1= 2,8 %	1=2,8 %	2=5,6 %	2= 5,f %	7= 19,4 %
Women	—	—	—	2=5,6 %	3= 8,3 %	1=2,8 %	1=2,8 %	2= 5,6 %	9= 25,0 %
Indeterminable	12=33,3 %	3=8,3 %	1=2,8 %	—	—	—	—	4=11,1 %	20= 55,6 %
Total	12=33,3 %	3=8,3 %	2=5,6 %	2=5,6 %	4=11,1 %	2=5,6 %	3=8,3 %	8=22,3 %	36=100,0 %

**Table 3 — Distribution of the skeletons of non-adults according to their age**

to 1 year	2=11,8 %	Indeterminable in detail:
to 2 years	1= 5,9 %	Infans I 1= 5,9 %
to 3 years	5=29,3 %	Juvenis <u>1= 5,9 %</u>
to 5 years	2=11,8 %	2=11,8 %
to 8 years	4=23,5 %	
to 11 years	— —	
to 14 years	— —	
to 16 years	— —	
to 19 years	<u>1= 5,9 %</u>	
	15=88,2 %	

**Measurement data on skulls from Litoměřice**

		Men										
Measure No.		1	5	8	9	10	11	12	17	20	23	24
Grave No.	1	199	—	135	101	126	—	—	—	—	532?	—
	2d	—	—	—	—	—	—	—	—	—	—	—
	3b	189	105	121	93	109	115	—	138	116	505	300
	12	—	—	—	—	—	—	—	—	—	—	—
	16	193	103?	139	93	116	116	110	138?	113	527	307

		Women										
Grave No.	4	—	—	—	—	—	—	—	—	—	—	—
	7	178	—	138	—	114	—	—	—	—	507	—
	8c	190	106	125	96	110	114	—	127	114	510	296
	9	180?	—	137?	95	—	113	113	135	114	—	—
	11	—	—	—	—	—	—	—	—	—	—	—
	13	188	—	133?	95	109	123	—	—	106	—	—
	14	190	110	129	96	—	98	98	127?	114	—	—
	18	178	100	128	93	111	108	102	136	111	493	293

		Men										
Measure No.		25	26	27	28	29	30	31	38	40	43	43/1
	1	—	—	—	—	—	—	—	—	—	—	—
	2d	—	—	—	—	—	—	—	—	—	—	—
	3b	376	133	144	100	116	122	86	1331	103	103	95
	12	—	—	—	—	—	—	—	—	—	—	—
	16	383	132	128	122	118	114	100	1538	104?	102	96

		Women										
Grave No.	4	—	—	—	—	—	—	—	—	—	—	—
	7	350	120	124	106	110	111	92	—	—	—	—
	8c	366	124	133	108	110	119	88	1276	110	104	96
	9	374	125	125	124	110	113	102	1369	—	—	—
	11	—	—	118	—	—	104	—	—	—	—	—
	13	—	119	114	—	107	106	—	—	—	101	95
	14	—	122	135	—	107	122	—	1313	—	99	93
	18	362	120	130	113	105	116	98	1276	95	97	90

		Men										
Measure No.		45	46	47	48	50	51	52	54	55	57	65
Grave No.	1	—	—	—	—	—	—	—	—	—	—	—
	2d	—	—	—	—	—	—	—	—	—	—	—
	3b	123?	96	116	68	20	40	30	24	45	8,1	122
	12	—	—	—	—	—	—	—	—	—	—	132
	16	127?	—	123	69	—	41	33	25	50	8,7	119

		Women										
Grave No.	4	—	—	—	—	—	—	—	—	—	—	—
	7	141	101	—	66	—	—	32	—	48?	—	—
	8c	125	95	114	68	24	41	32	26	48	14,8	115
	9	—	—	—	—	—	—	—	—	—	11,7	124
	11	—	—	—	—	—	—	—	—	—	—	—
	13	133	99	106	59	21	39	32	26	45	12,5	120
	14	—	91	117	67	25	39	36	—	52	13,0	—
	18	119	88	107	64	—	40	31	22	47	—	112

		Men							Stature
Measure No.		66	69	70	71	A	B	C	
Grave No.	1	107	33?	73	32	—	—	—	175,7
	2d	—	—	—	—	—	—	—	171,1
	3b	96	33	63	28	18,0	19,8	3,0	178,0
	12	110	—	73	29	—	—	—	171,7
	16	96	37	62	31	19,6	—	5,3	167,6

		Women							Stature
Grave No.	4	—	—	—	—	—	—	—	168,5
	7	—	—	—	—	—	19,5	—	164,8
	8c	93	34	67	32	23,3	22,4	6,0	—
	9	102	—	65	33	—	—	8,0	161,0
	11	—	27	—	—	—	—	—	160,0
	13	102	28	62	34	18,4	23,2	6,1	157,8
	14	89	26	52	27	19,2	18,5	3,8	160,5
	18	91	29	58	29	—	21,1	—	161,8

### Indices of skulls from Litoměřice

		Men									
Index No.		I 1	I 2	I 3	I 13	I 38	I 39	I 42	I 48	I 60	I-FM
Grave No.	1	67,8	—	—	74,8	—	—	—	—	—	—
	2d	—	—	—	—	—	—	—	—	—	—
	3b	64,0	73,0	114,0	76,9	94,3	53,7	75,0	53,3	98,1	103,2
	12	—	—	—	—	—	—	—	—	—	—
	16	72,0	71,5	99,2	66,9	96,9	54,3	80,5	50,0	101,0	103,2

		Women									
Grave No.	4	—	—	—	—	—	—	—	—	—	—
	7	77,5	—	—	—	—	46,8	—	—	—	—
	8c	65,8	66,8	101,6	76,8	91,2	54,4	78,0	54,2	103,8	96,9
	9	16,1?	75,0?	98,5?	69,3	—	—	—	—	—	107,4
	11	—	—	—	—	—	—	—	—	—	—
	13	70,7	—	—	71,4	79,4	44,4	82,1	57,8	—	107,4
	14	67,9	66,8	98,4	74,4	—	—	92,3	—	—	92,7
	18	71,9	76,4	106,3	72,7	89,9	53,8	77,5	46,8	95,0	97,8

		Men		
Index No.		A	B	C
Grave No.	1	—	—	—
	2d	—	—	—
	3b	18,9	20,6	37,0
	12	—	—	—
	16	20,4	—	60,9

		Women		
Grave No.	4	—	—	—
	7	—	19,3	—
	8c	24,2	23,6	40,5
	9	—	—	68,4
	11	—	—	—
	13	19,4	23,4	48,8
	14	20,6	20,3	29,2
	18	—	24,0	—

## COMMENTS ON THE INTERPRETATION OF SOME BONE DEVIATIONS

### L. VYHNÁNEK

In the study of bone deviations in sets of skeletons from archaeological excavations the greatest attention is devoted to the finds which from palaeopathological and recent clinical point of view are exceptional. On the other hand, frequent finds of congenital or acquired bone changes are often underestimated; they are considered banal and because of their serial occurrence they are sometimes neither carefully registered nor fully diagnostically evaluated.

The diagnosis of some of these frequently found bone deviations seems to be easy. Nevertheless sometimes it is influenced by somewhat simplified etiological opinions (applied also in clinical practice). On several examples from the Slavonic burial-ground in Litoměřice from the 12th century we want to point out some problems which reflect the lack of unity in interpretation and fundamental conception of various authors, as well as a certain development in the evaluation of individual bone deviations.

#### **Spina bifida, spina bifida occulta or „Open vertebral arch“?**

In the examination of the skeleton from Grave 3b (a mature man, 50—60 years) there can be seen in the middle line of the arch of the cervical vertebra the interruption of its continuity by a fissure which divides the processus spinosus into two slightly unequal halves; they apparently diverge dorsally (Table III, 1a, b). Advanced vertebral osteophytosis is evident, apparently accompanying osteochondrosis of the intervertebral disc between C 6 and C 7 and advanced degenerative arthritis of the intervertebral joint between C 5 and C 6 on the right.

Similar find as was made on the arch of the described 6th cervical vertebra is frequently diagnosed as spina bifida. This diagnosis for the sagittal fissures in the vertebral arch survives from a habit, taken over from the clinical practice; as a denotation for this fissure it appears even in textbooks (BLAŽEK et al. 1980), without taking into account its proper character. In works which deal with the clefts in the vertebral arch in detail (WOLFERS and HAEFFKEN 1974), the sagittal fissures are defined as follows:

a) Spina bifida. It is connected with defects of spinal cord and the meninges with their protrusion from the spinal canal.

b) Spina bifida occulta. The sagittal fissure in the arch is connected with the defect of the spinal cord but without the protrusion from the spinal canal. It is often accompanied by typical skin changes or by tumors of soft tissues in the level of the fissure.

c) Open vertebral arch. This is a disturbance of ossification, in which the connection between two halves of the arch is only cartilaginous.

As it follows from these data, while the first two types are part of a significant pathological condition, in the last case the ossification abnormally is not very significant. The differentiation of these three types

of the sagittal fissure in the vertebral arch is in the skeletal material more or less questionable. These types cannot be distinguished according to the medial or paramedial localization of the fissure, and the combination with other simultaneous deviations is not diagnostically valuable for differentiation. Maybe only in extensive arch defects in more levels, in which we can assume a simultaneous disorder of the spinal cord and its meninges and the possibility of their protrusion outside the spinal canal, the exact diagnosis is made easier.

Strictly critically considered diagnosis of „spina bifida“ should be thus used in the interpretation of sagittal arch fissures in skeletal material only in more precisely defined cases than has been done so far, or at least — with regard to the deep-rooted use of this term for all sagittal fissures in the vertebral arch — it should not be forgotten that it is not an exact typological characteristic.

### **Spondylolysis as an etiological problem**

In the skeletal material from Litoměřice 2 cases of spondylolysis on the lumbar vertebrae were found — on the skeleton from Grave 13 (an adult woman, 30—40 years) and from Grave 18 (an adult woman, 20—30 years). In both cases spondylolysis was localized in pars interarticularis of the arch, symmetrically and bilaterally. In the first case it is localized on L 5 (Grave 13), in the second case on L 4 (Grave 18). This is the most common type in the localization of spondylolysis; nevertheless both finds differ to some extent.

In the spondylolysis from Grave 13 (Table III, 2a, b) the delimitating facets are smooth, covered over with continuous cortex; on the separate part of the arch they are very small, flat, pointed forward. On the contrary, in the find from Grave 18 they are irregular with many protuberances and numerous small perforations. A clear prominence can be seen on the medial edge of the delimitating facet on the left (arrow). Much more than in spondylolysis on the skeleton from Grave 13 is evident the asymmetry of the separate dorsal part of the arch with the hypoplasia of the lower articular process on the right.

The morphology of these two finds differs to a certain extent, nevertheless detailed examination shows that none of them can be classified with the group of the secondary spondylolyses of traumatic origin.

In the former there is no evidence of that; in the latter find the unevenness of the delimitating facets and the prominence on the edge of the left one would seem to be such evidence. However, the X-ray examination showed that it is a bone protuberance with a normal bone structure and not an osteophytic formation of the productive character. Nevertheless the hypoplasia of the lower articular process on the left could provoke the discussion. The authors who support the theory of the origin of spondylolyses as stress fractures would find in this deviation a basis of changed relations leading to the zone reconstruction in pars interarticularis of the arch, the supporters of the congenital etiology would interpret it as part of a complex which comprises even spondylolytic fissure as an equivalent congenital deviation.

We consider the spondylolysis a polyetiological condition (VYHNÁNEK and STLOUKAL 1983), in the development of which several etiological factors can participate separately or simultaneously, but in which the share of congenital influences is decisive (VYHNÁNEK and STLOUKAL 1977, 1983). We believe that it is not correct to classify all cases of spondylolysis only with acquired bone abnormalities and explain them simply as a consequence (i. e. pseudoarthrosis) of stress fractures as it is often done. The zone reconstruction in pars interarticularis due to local strain can sometimes play an important role; most spondylolyses in active sportsmen whose spine is exposed to excessive and nonphysiological straining belong there.

The opposite to the beliefs in a purely mechanical basis of the origin of spondylolysis is the opinion which attributes spondylolysis only to abnormal ossification of the vertebral arch. This interpretation is based on the questionable assumption of the existence of 2 ossificating nuclei in each half of the arch; then the immediate cause of the origin of spondylolysis would be unrealized joining of these nuclei. Against this claim — as well as against the usual classification of spondylolysis with stress fractures — stands the fact that spondylolysis does not always occur in the same place in pars interarticularis, but also in other parts of the arch, for example retrosomatically or retroarticularly. TÖNDURY's studies (1974), based on the examination of cuts of numerous series of vertebrae, showed that ossification of the vertebral arch always starts perichondrally, namely in the medial facet of pars interarticularis. From here it proceeds in the direction to incisura vertebralis superior and dorsally along the lower articular process. However, Töndury observed in a 14 mm foetus fissures in vertebral arches, too; in his opinion the fissures are the basis of spondylolysis. His observation ranks with the finds which are considered to be the proof of the possibility of origin of congenital forms of spondylolysis. Its origin, however, has nothing to do with ossification of the arch; it refers to the primary abnormality of the basis of the arch, as it is manifested in the mesenchymal phase of the development of vertebral column (TÖNDURY 1974).

### **Hyperflexional fracture of the vertebra: the mechanism of its origin**

The posttraumatal deformities of the vertebral bodies are relatively frequent in skeletal sets from archeological excavations (HANÁKOVÁ and VYHNÁNEK 1981). They are mostly diagnosed already during the first morphological examination of the material and they attract attention even for the secondary degenerative-productive spondylopathical process which often accompanies them.

The skeleton from Grave 2d (an adult man) belongs to these finds, too. The body L 2 is distinctly ventrally wedge-shaped, it bears prominent osteophytes, as well as the neighbouring vertebrae (Table IV, 2a). Detailed observation shows that the lower facies terminalis of this vertebra has its usual appearance, while the upper facies terminalis is in its ventral part deepened by a transverse groove (Table IV, 2b). The X-ray examination shows that (regardless of the osteophytes) the shadow of this ver-

tebra is evidently thicker below this groove. The find is characteristic of the hyperflexional fracture of the vertebral body.

The origin of a fracture of the vertebral body can be basically influenced by a force operating either during the limited flexion (Table IV, 1e, f). In the loose flexion the mechanical influence affects especially the upper frontal quadrant of the vertebral body; by this traumatical disturbance a step-shaped deformation of the ventral edge of the vertebral body appears there. This deformation is localized in its upper half and it is well-known from clinical radiological practice. At the same time the body of the vertebra becomes ventrally wedge-shaped (Table IV, 1b). If the force operates at the same time in the vertical direction a thickening of the bone shadow appears near the deepened upper facies terminalis (Table IV, 1c); this occurred even in the case of the vertebral fracture from Grave 2d. The subsequent condition — after the healing of the fracture — is a wedge-shaped vertebra (Table IV, 1d) with a deformation of the upper facies terminalis in the ventral half. With the force operating only in vertical direction, the step-shaped deformation of the ventral edge of the vertebral body develops in its lower half (Table IV, 1e) and it can develop a biconcave deformation of the vertebra (Table IV, 1f), with the deepening of both facies terminales, often observed especially in osteoporotic vertebral columns. Of course, combination with other changes is possible; fractures leading to lateral lowering of the vertebral body and thus to the development of posttraumatical scoliosis are the most frequent among them.

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## SLOVANSKÉ POHŘEBIŠTĚ V LITOMĚŘICÍCH

V roce 1979 provedl Archeologický odbor Krajského muzea v Teplicích ve spolupráci s Okresním vlastivědným muzeem v Litoměřicích záchranný archeologický výzkum slovanského pohřebiště na severozápadním okraji městské zástavby Litoměřic, podél Plešivecké ulice. Získaný archeologický materiál byl po odborném zpracování předán Okresnímu vlastivědnému muzeu v Litoměřicích, kde je deponován pod inventárními čísly 506—556. Kostrové pozůstatky z tohoto výzkumu jsou uloženy v antropologickém oddělení Národního muzea pod inv. č. 9230—9255.

Tato práce má jako obvykle úvodní část archeologickou, následuje demografický a metricko-morfologický rozbor koster z pohřebiště a konečně třetí část pojednává o zdravotním stavu zkoumané populace.

Na severozápadním okraji městské zástavby Litoměřic, podél Plešivecké ulice byl prováděn v roce 1979 archeologický záchranný výzkum. Výzkumem bylo odkryto celkem 26 hrobů, které jsou pouze částí pohřebiště většího rozsahu. Některé hroby byly porušeny amatérským zásahem anebo byly ubagrovány, jiné byly porušeny mladšími hroby. Pro datování pohřebiště je důležitá výbava hrobů, podle níž můžeme rozlišit hroby s nožem (případně s nožem a nádobou), hroby se záušnicemi a třetí skupinu tvoří hroby s mincí. Hroby první skupiny (2 D, 2 E a 4 B) datujeme do druhé třetiny 10. století. Přesnější datování 8 hrobů se záušnicemi je problematické; nejstarší mohly být uloženy do země před rokem 1000, některé hroby (2, 11, 17) s většími záušnicemi jsou datovány do první poloviny 11. století, datování stříbrné záušnice z hrobu 15 a záušnice z hrobu 14 spadá spíše do druhé poloviny 11. století. Hroby 13 a 9 byly vybaveny mincí Břetislava II, mince Bořivoje II z hrobu 8 C je třeba posuzovat jako nálezu šperku. Vyplývá to jak z umístění mince v hrobě, tak i z toho, že denár byl na dvou místech provrtán pro zavěšení. Uložení zesnulého do hrobu bylo možné nejdříve v roce 1100, ale s ohledem na interpretaci nálezů je třeba počítat spíše s větším časovým odstupem. Ostatní hroby jsou bez milodarů, ale můžeme předpokládat, že hroby byly ukládány podle určité zásady: nejstarší hroby jsou ve východní části zkoumaného pohřebiště, mladší v řadě na západním okraji. Začátek zkoumané části pohřebiště je tedy datován do 10. století, jeho akeramická fáze je ukončena někdy ve 12. století.

Převážná většina nebožtíků byla uložena na zádech s rukama podél těla a nataženými nohama. Výjimku činí hroby 2 A, 7 a 8 C. Hrob 7 je zavalen mohutným kamenem a je situován na okraji pohřebiště. Podle Z. Krumphanzlové lze tuto výjimečnost vykládat jako jistý doklad vampyrismu. V této souvislosti je zajímavé antropologické zjištění, že lebka z tohoto hrobu má rysy mongoloidního typu. Druhá anomalie v pohřebním ritu je skrčená poloha nebožtíka. V hrobě 2 A lze těžko rozhodnout, zda se jedná o záměr či o náhodu. Pokrčení kostry v hrobě 8 C však bylo záměrné. Svědčí o tom hrobová jáma zužující se na východní straně i její délka, která by v případě natažených nohou nepostačovala.

Jak vyplývá ze zjištěné situace, náleží zkoumaná část pohřebiště v Plešivecké ulici k běžným venkovským pohřebištím. Za současného stavu poznání slovanského osídlení na dnešním katastru Litoměřic nemůžeme uspokojivě zjistit, ke kterému sídlišti náleželo.

V 18 hrobech ze 26 odkrytých byly nalezeny kostrové pozůstatky, celkem však to byly pozůstatky 36 osob. Z toho bylo 17 (47,2 %) nedospělých a 19 (52,8 %) dospělých. Z nedospělých bylo 12 dětí věku infans I (33,3 %), pouze 3 (8,3 %) starších dětí infans II a 2 (5,6 %) náleží juvenilním jedincům. Z dospělých bylo 6 (16,6 %) určeno jako mužské kostry a 9 (25,0 %) ženské, u 4 (11,1 %) dospělých koster nebylo možno pro fragmentárnost materiálu určit pohlaví zemřelého. Ženy umíraly v časnějším věku, u mužů jde spíše o příslušníky starších decenií. U nedospělých jedinců je nejvíce případů ve stáří do tří a osmi let. Tato demografická data mají jen informativní význam, protože hodnotíme jen vzorek populace (z celého pohřebiště byla prokopána jen malá část).

Pro metrický rozbor byly k dispozici jen 3 mužské a 7 ženských lebky; míry jsou uvedeny v připojených tabulkách. Převahu mají jasně hyperdolichokraní a dolichokraní lebky, jen dvě ženské lebky jsou mesokraní. Obličej je výrazně úzký, hyperleptoprosopní a mesenní až leptenní. U mužů i žen převládá vysoká postava.

Z anatomických variet jsme na zkoumaném materiálu zaznamenali v jednom případě slabě vytvořený torus mandibularis (hr. č. 16), torus palatinus u lebky č. 8 C a vytvoření dvou vsutých kůstek v lambdovém švu u lebky č. 14.

Typologicky hodnotitelné byly 3 mužské a 6 ženských lebek. U mužů ve všech případech šlo o dolichomorfy a u dvou lebek bylo možno hodnotit i obličej, který představoval leptomorfní tvar. U žen převládají zřetelně leptodolichomorfní typy, jednou se vyskytl eurydolichomorf a jednou eurymesomorf. Zvláštní postavení má v této malé sérii lebka ženy z hrobu č. 7 se širokým obličejem a vysedlými lícními kostmi, což jsou rysy mongoloidního typu.

Z vrozených kostních odchylek uvádíme ponticulus atlantis posterior, který byl zjištěn pouze jednou, a to v bilaterální formě na skeletu ženy z hr. č. 13 (žena, ad., 30—40 let). Jde o manifestaci okcipitálního obratle, jejíž současný výskyt s další intrinzickou kostní odchylkou na tomtéž skeletu — spondylolýzou — považujeme za nejspíše náhodnou koincenci. Bederní páteř bylo možno hodnotit u skeletu 5 dospělých mužů a 5 žen, ale byly tu zjištěny 2 případy bilaterální interartikulární spondylolýzy (hr. č. 13, žena, ad., 30—40 r., L 5; hr. č. 18, žena, ad., 20—30 r., L 4).

Z dalších vrozených odchylek považujeme za vhodné zmínit bilaterální krční žebro u skeletu z hr. č. 14 (žena, mat., 50—60 r.), kostní odchylku, která sama o sobě není zvláštností, avšak ve slovanském kosterním materiálu byla jen málokdy nalezena tak dobře zachovaná a tak výrazně vyvinutá, jako je tomu u uvedeného skeletu. Sem patří také spina bifida 6. krčního obratle skeletu z hr. č. 3 B (muž, mat., 50—60 r.),

Mezi získanými kostními změnami zaujaly především projevy degenerativněproduktivních arthropatií a spondylopatií. Tyto procesy byly vesměs diagnostikovány na skeletech jedinců vyššího individuálního věku (např. z hr. č. 3 B, muž, 50—60 r., nebo z hr. č. 12, muž, 50—60 r.).

Z dalších získaných změn je věnována pozornost stavu po kompresivní zlomenině hyperflekčního typu, diagnostikované na 2. bederním obratli skeletu z hr. č. 2 D (muž, dospělý).

## EXPLANATION OF TABLES

TABLE I

1 — Grave 3B, man (50—60 years); 2 — Grave 13, woman (30—40 years); 3 — Grave 16, man (40—50 years).

TABLE II

1 — Grave 5, child (5 years); 2 — Grave 14, woman (50—60 years); 3 Grave 18, woman (20—30 years).

TABLE III

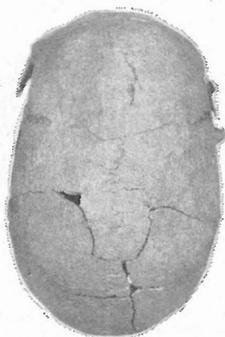
1: Grave 3b (man, mature, 50—60 years). „Spina bifida“ of C 6. View from above (a) and from below (b). A marked degenerative-productive spondyloarthropathy. — 2: Grave 13 (woman, adult, 30—40 years). Bilateral interarticular spondylolysis of L 5. View from above (a) and from below (b). Type with small delimitating facets. — 3: Grave 18 (woman, adult, 20—30 years). Bilateral interarticular spondylolysis of L 4. View from above (a) and from below (b). Type with irregular delimitating facets with many prominences; anomalous protuberance on the edge of one of them (b, arrows).

TABLE IV

1: The direction of the influence of the force in hyperflexional fracture in loose flexion of the spine (a), with the development of characteristic step-shaped deformation under the upper edge of the vertebral body (b), with thickening under the deepened upper facies terminalis with simultaneous influence of the vertical force (c); wedge-shaped disfiguration of the vertebral body with deformed upper facies terminalis as the resulting state (d). Concave deepening of one or both facies terminales (e, f) resulting from the only vertical force influence at limited flexion. The step-shaped deformation develops above the lower edge of the body (e, arrow). — 2: Grave 2d (an adult man). The condition after the hyperflexional fracture of the body of L 2, with secondary osteophytosis (a). Transversally grooved deformation of the upper facies terminalis (b, arrow).



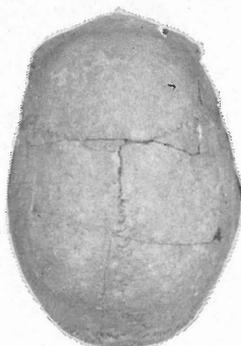
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2

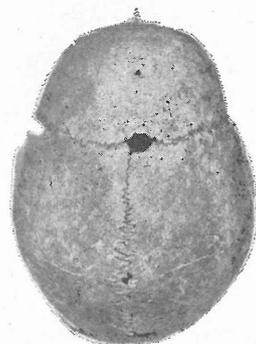


3

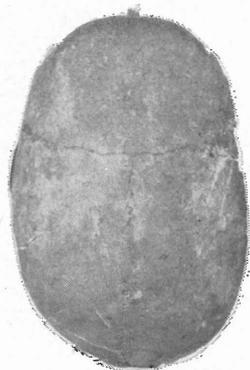
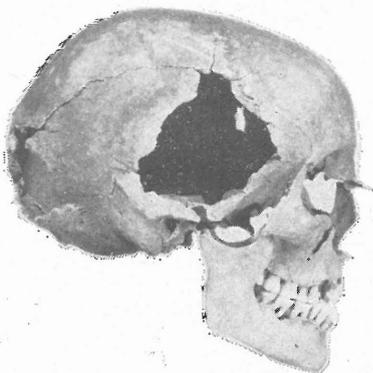




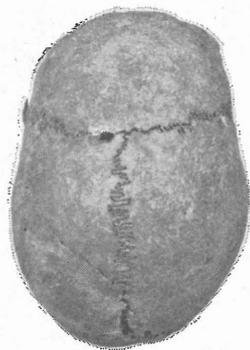
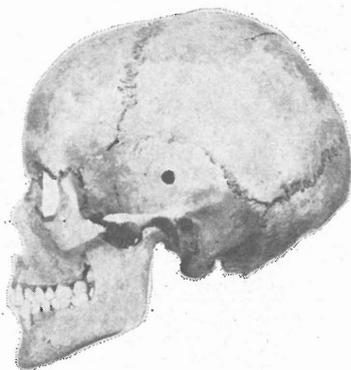
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2

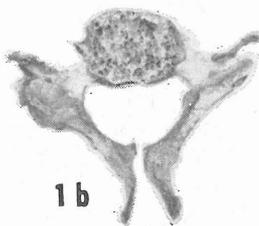


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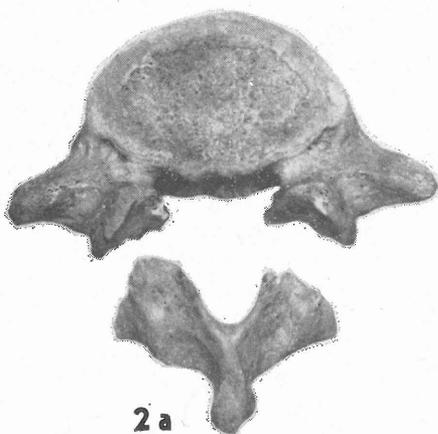




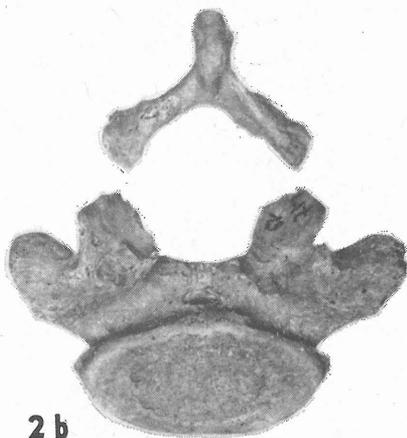
1a



1b



2a



2b



3a



3b

